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Increasing Less-Lethal options for patrol:
What are the legal and moral obligations for the Garland Police Department and other agencies?

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Abstract

Although Specialized Weapons and Tactics (SWAT) units have traditionally deployed the majority of less lethal weapons, society demands that patrol officers have access to these weapons when facing the rise in "suicide by cop" and civil unrest incidents.

Common police sense would seem to indicate a need for more legally and morally mandated, extended range less-lethal options for patrol officers. However, a review of case law, literature, surveys and interviews were combined to determine if that is true. Currently, courts do not mandate patrol-based less-lethal weapons or support civil suits for failure to provide these alternatives to officers. However, agency surveys reveal a large movement towards expanding use of force continuums with less lethal options for police. Also, the increasing demand for patrol officers to deal with suicidal subjects and riots creates a moral obligation to explore more humane tools for de-escalation and resolution. The ultimate goal is to reduce the severity of citizen injuries and save lives.

When considering patrol applications, needs-assessment and cost-analysis the decision was divided between the shotgun beanbag and the PepperBall. However, a more stringent focus on capabilities, limitations, familiarization, and expert opinions reveals the drag-stabilized shotgun beanbag is the best patrol-based option.

In conclusion, even absent a legal obligation, the Garland Police Department has a moral obligation to proactively provide additional extended range less lethal weapons to the patrol toolbox. The sharp annual increase in suicidal protective custody arrests by the Garland Police Department supports this obligation. Undoubtedly, the best tool overall is the 12-gauge, drag-stabilized beanbag.

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Introduction

Specialized Weapons and Tactics (SWAT) units have traditionally held a monopoly on the firepower. However, in our ever-changing society, there appears to be a push toward moving some of these options back to the first responder level. One reason for this change is most small to mid-sized police agencies cannot afford to staff a full time SWAT team, yet some incidents develop so rapidly that they have been resolved before part-time SWAT personnel can respond. This requires patrol officers to use the only viable option available at the time -lethal force. In response to this problem some agencies have not only issued additional deadly force weapons to patrol, but are also considering extended range less lethal impact munitions. For example, the Midland Police Department has issued rifles to their officers and also considered providing them with beanbag shotguns (Kraft, 2000).

Aside from departmental limitations, there have also been significant increases in *suicide by cop* and *victim-precipitated homicide* incidents. This underscores the need for additional force options between the baton and the firearm. In an analysis of police shootings from 19aO to 1996, roughly half of the incidents met the characteristics for victim-precipitated homicide (Parent 1996). Suicide by cop is the term used when a suicidal suspect threatens an officer with any force, including deadly force, causing the officer to kill him. Regardless of the suspect's actions, society has begun to question officer discretion and agency policy when an officer takes the life of a suicidal person. Many current less lethal options for patrol officers are either ineffective, or they present an unacceptable officer safety hazard because of poor accuracy or limited range. This has resulted in a large push toward finding and implementing weapons that effectively meet the criteria for *less lethal* weapons. For the purpose of this paper, less lethal and *less than lethal* are interchangeable terms, referring to a weapons system that is designed to cause compliance through the use of force, yet not likely to cause death when correctly used.

The author's research will seek to determine the need for additional less lethal weapons, specifically the extended range impact munitions, to be readily available to Garland's patrol officers. The Garland Police Department currently has a part-time SWAT team that deploys these weapons upon demand. Although the patrol division uses other less lethal devices such as pepper spray and impact batons, extended range less lethal impact weapons are not immediately available to the first-responder. When maintaining distance is critical (such as suicide by cop incidents), deadly force is the only option currently available to the officer. Although the broad range of less lethal weapons spans from pepper spray

to the threat of lethal force, this study will focus on extended range less lethal impact weapons that would be effective in suicide by cop incidents.

The author also seeks to determine whether the Garland Police Department has any moral or legal obligation to provide extended range less lethal impact weapons to the patrol division. If an obligation is established, then it a further search for the best weapon for patrol applications will be conducted. The intended methods of research for this project are as follows:

- Books on use of force and less lethal weapons
- Articles related to less lethal weapons, suicide by cop, use of force and civil liabilities
- Random surveys of police agencies that use less lethal projectiles in the patrol division
- Interview at least one Expert on less lethal devices

It is hypothesized that the Garland Police Department has a legal and moral obligation to provide patrol officers with additional less lethal options and failure to do so would result in civil liability. It is further hypothesized that the best plan of action would be placing the Sage SL6 37mm launcher in each of the supervisor cars. This would make the most effective weapon available, while reducing the costs associated with equipment training, ammunition, and recertifications.

The significance of this research and its benefits to law enforcement are paramount. Placing another tool in the patrol officer's less lethal toolbox could have several positive effects. First, an additional less lethal option may save the lives of some suicidal suspects. Next, officers are less likely to experience the traumatic stress syndrome associated with taking a life. Finally, the Garland Police Department may reduce negative media attention, citizen criticism, and the risk of civil liability resulting from police shootings.

Review of Literature

The need for less lethal weapons is not a new issue in law enforcement It was identified in 1972, when the Department of Justice teamed up with the National Science Foundation to sponsor a national conference on that very topic. In 1985, the U.S. Supreme court ruled in *Tennessee v. Gamer* that deadly force could not be used against a fleeing felon (as cited by National Institute of Justice [NIJ], 1987). The following year, Attorney General Edwin Meese held another conference to assess the progress of less lethal research, look at technological advancements, and consider future developments of less lethal weapons. In the foreword to the report on this conference, Director of the National Institute of Justice,

James K. Stewart, wrote the following statement "Law enforcement officials have long recognized that a wide and dangerous gap exists in the range of tools that are available to them" (NIJ, 1986, *iii).* They agreed that one weapon could not fill that "gap", because no single option could be used in every scenario or meet all the law enforcement needs. It was also at this conference that the term nonlethal was abandoned with the understanding that any weapon could be lethal if used inappropriately. In replacement came the phrase less than lethal, which was defined as "devices or agents used to induce compliance with law enforcement personnel without substantial risk of permanent injury or death to the subject" (NIJ, 1986, 2).

In July 1991 and March 1992, the National Institute of Justice met again to review the research on less lethal weapons, but the topics for discussion were the same ones discussed in 1986. Several scenarios were chosen that would likely require less lethal weapons. However, it was noted that no current weapon could work for all of the scenarios and different situational factors could directly affect the usefulness of any less lethal weapon. (NIJ, 1993, 3).

In the 1990's, an increasing number of suicidal subjects forced police officers to shoot them by threatening or assaulting the officer with a weapon. Richard B. Parent documented this phenomenon in a study of incidents he referred to as "victim-precipitated homicides." Roughly 48% of the police shootings that he analyzed had the characteristics of victim-precipitated homicide. In conclusion to his study, Parent recommended that agencies train recruits to deal with suicidal subjects and "nonlethal compliance tools be considered for deployment in the field (Parenl1996)."

Concerns about reducing police use of force and police-citizen killings are not limited to the United States. In May of 1997, Chief David Boothby of the Metropolitan Toronto Police Services established a committee to review all possible strategies or methods to reduce the use of force, specifically, deadly force. The focus of this study was actually leaning toward the replacement of the firearm. After consulting with experts from the United States, England, Australia, and Canada, the committee reported that there was not a less lethal weapon available that could replace the firearm (Button, 1997).

In a study of 99los Angeles County Police Shootings, 10% of the incidents were suicide attempts. The author labeled these attempts as, suicide by cop. This study also revealed another fact that was already known to most veteran officers; the majority of the suicidal subjects were either intoxicated or psychologically impaired (Pyers, 2001). This is extremely important information to consider when selecting a less lethal weapon because some of the chemical agents are known to be less effective on intoxicated and mentally impaired subjects. In a study of 437 police less lethal deployments, 50% of the subjects were

intoxicated and 58% had a history of psychiatric problems. Another study of suicide by cop incidents from 1992 to 1997 revealed that over 500k of the subjects were "under the influence of alcohol (Pyers, 2000, 4).

The Annuls of Emergency Medicine published a report on 40 police incidents, in which subjects who were shot with beanbags received a mental evaluation. An amazing 74% of the 39 that were screened for drugs or alcohol tested positive. Not only did 51 % of the subjects test positive for alcohol, but an additional 28% also tested positive for cocaine. Antidepressants were also detected, which reflects a history of psychiatric problems in those subjects. The authors stated that "68% of the patients who had the benefit of psychiatric evaluation had sufficiently impaired communication, judgment, or both that they would be unlikely to be able to comply with an arresting officers' instructions to submit" (de Brito et al, 2001,389).

The Bureau of Justice Statistics published a study of justifiable homicides and police officers murdered by felons, which had two main points of interest to this study. First, police kill an average of 400 suspects per year in justified shootings (NIJ. 2001, *iii).* If the statistics from Los Angeles County remain true, then approximately 40 people commit "suicide by cop" each year in the United States. In fact, experts estimate that 40 - 100 of the annual police-citizen killings are the result of victim-precipitated homicide, meaning the victim planned and caused his own death at the hands of another person (Paynter, 2000, 44). Many officers have no force option available to them between the pepper spray or baton and the firearm. If the suspect has a knife, the officer must maintain a minimum distance of at least 21 feet for his safety. The pepper spray and baton are not effective at this range, but if the officer closes that gap, he is placing his own life in jeopardy. The firearm is the officer's only viable option, leaving the officer no choice other than to shoot the suspect who turned the threat toward him. Many agencies have evaluated their police-citizen shootings and determined that the patrol officer needs additional less lethal weapons. Seattle Washington had a series of police involved shootings that drew a great deal of public attention. In response to this attention, they have purchased tasers and the beanbag shotguns for their patrol officers. The second point of interest was the number of officers present when the shootings occurred. According to the study, there were 8,578 felons killed by police from 1976 to 1998. In 86% of these cases, there was one officer at the scene. In 10%, two officers were present and three officers were present for the remaining 4% (NIJ, 2001, 30). This data shows that 7378 of these shootings would have happened so quickly that less lethal weapons could not have been an option. In 96% (N=8235) of the shootings, the incident occurred before a third officer arrived, which would indicate that even a full-time SWAT team could not have responded in time. This supports the need for less lethal alternatives in a majority of the patrol cars. On the other hand, it also suggests that the outcome could have been different for at least 1200 of these shootings if less lethal had been immediately available. Unfortunately, there was no data collected on the exact time frame from

the arrival of the first responder to the time the shooting occurred shooting. Understandably, many of these were also lethal threats and less lethal weapons would have been inappropriate, but statistics for a quantifiable determination were not collected.

The Seattle Police Department (SPD) studied three issues: (1) use of force nationwide and in Seattle, (2) fatal shootings nationwide from 1999-2000, and by Seattle officers from 1980 to present, and (3) less lethal force options used across the country and in Seattle (Seattle Police Department, 2001, 1). A Force Options Research Group (FOR G) and a Community Workgroup on Less Lethal Options were formed to assess the less lethal alternatives and recommend policy changes within the Seattle Police Department. In the study of 33 fatal shootings over a 22-year period, 24% of the subjects were armed with a weapon other than a firearm. When exploring less lethal options, SPD surveyed 23 agencies about their less lethal option programs. Only 17 of the 23 agencies allowed patrol officers to deploy less lethal weapons, and 15 of the 17 only issued them to designated officers (SPD Special report, 2001, 15). The first change recommended by FORG was a 4O-hours Crisis Intervention Training (CIT) course for select officers, who could then teach an 8-hour course to the remaining officers. Apparently, one less lethal option did not meet all the needs of the 130 patrol officers. As recommended, the two less lethal options, M26 Tasers (130) and beanbag shotguns (130), were added to the patrol division. The weapons considered in this study included but were not limited to the PepperBall, the 12-gauge beanbag, and the 37mm beanbags and batons.

The incidents involving suicide by police have become common to every police agency. The knowledge of less lethal weapons is widespread and seems to be a topic in most tactical magazines and police tactical conferences. For example, the Tactical Edge had an article on less lethal weapons in every issue for the year 2000. According to Ross and Jones, "the need to train officers in the constitutional use of less-than-lethal force is so 'obvious' that the failure to train could properly be characterized as 'deliberate indifference' to the constitutional rights of the citizen." (1996)

In addition to numerous articles on suicide by cop and less lethal weapons, studies on the effectiveness of the various weapons have increased. While the three categories have not changed, the number of manufacturers has increased, making it more difficult for police departments to select a less lethal weapon system. In response to this dilemma came the Attribute Based Evaluation (ABE) of Less-Than-Lethal, Extended-Range, Impact Munitions. The Los Angeles Sheriffs Office and Pennsylvania State University's Applied Research Laboratory conducted this two-day study in February 2001. During the study, the researchers evaluated 80 different types of less-than-lethal impact munitions and compared them based upon cost, accuracy at 21 and 75 feet, and momentum. Accuracy was based on dispersion, rather than "point of aim, point of impact", to eliminate the need to site in each weapon used for the project The

accuracy was measured at 21 feet because that is the recommended minimum distance to maintain from a subject with a knife. The 75 feet measurement is a little more complex. The average distance that a man can throw 1.2-pound object is 180 feet. This is the recommended minimum distance to maintain from a rioter who is throwing objects at the police. Because none of the current less lethal weapons can accurately *shoot* 180 feet a distance of 75 feet was used. The information provided in this study will go a long way toward assisting agencies in sorting through all the vendors and options in order to select the best less lethal weapon for their needs. The XM1006 Defense Technology sponge round was reported to have a dispersion rate of 9 inches at a distance of 21 feet but only 5 inches at 75 feet Two other accuracy ratings of interest were the Drag Stabilized 12 gauge round by Defense Technologies and the PepperBall encapsulated OC round, which had dispersions of 3 inches and 7 inches at 21 feet respectively (Kenny et al, 2001).

Although there are studies on the effectiveness of the weapon in testing, there is little data on the effectiveness of the weapons for law enforcement applications. Several deaths were reported from the use of beanbags, causing some agencies to be hesitant to purchase them. The first study of injuries, effectiveness, and deaths caused by less lethal weapons was conducted by Ken Hubbs of David Klinger through a grant funded by the National Institute of Justice. Surveys were sent to nearly 700 agencies, but only 106 agencies responded to the survey. This report contained data on all deaths related to bean bags in the United States and Canada, but does not have the complete data on every beanbag shooting.

However, it does provide a good sample of the patterns in injuries caused by different munitions and launchers under varying conditions. The data collected consisted of case reports on 373 separate beanbag shooting and an analysis of each of the 969 rounds that were reportedly fired in those shootings. Out of the 969 rounds fired, 782 impacted the suspects and 87% of those impacts resulted in only bruises, abrasions, and lacerations (Hubbs, 2002, 16). There were 10 fatalities included in the report, which, according to the author, included all of the beanbag-related deaths. Two of the ten were actually misloaded rounds - one door breech and one barricade penetrating round. The 37mm launchers (5 rounds) and shotgun beanbag rounds (3) caused the remaining eight deaths. The author noted that officers were being called upon more frequently to deal with suicidal and emotionally disturbed persons (EDP), which was leading to an increase in the need for less lethal alternatives. In addition, it was noted that suicidal EDP's made up nearly half of the subjects who were shot in this study (Hubbs et AI, 2002, 3-7). The author concluded that the less lethal munitions did save lives. This was because lethal rounds result in death approximately 50% of the time, but only 2.2% of the less lethal rounds were shown fatal. (This is far less than lethal rounds, which are reportedly fatal in almost 50% of the shootings.) The fatality percentage for less lethal rounds was possibly

inflated, because beanbag shootings are under-reported and lack any consistency. If all of the shootings had been reported, this percentage would have been even lower. Another notation was that 93% of the incidents in this study were resolved with no lethal rounds fired, but deadly force would have been justified in 90% of the incidents. Finally, at least one of the deaths in the report was intended and justified based on the deadly threat that the officers were facing. (Hubbs et AI, 2002, 10-21)

The International Wound Ballistics Association conducted another study regarding less lethal weapons. This study analyzed the accuracy of the drag stabilized and square beanbag projectiles shot from smoothbore and rifled 12 gauge shotgun barrels. The rounds fired from the 20-inch cylinder bore barrels were more accurate in all of the ammunition tested. The drag stabilized bean bag projectile held a 5 inch group at 50 feet in the smoothbore, while it degraded to an 8 inch group in the rifled barrel. The square bean bag projectiles shot at groups of 9 % inches in the smoothbore barrel and several types square bags fired from the rifled barrel ranged up to 30 inches center to center. The researchers also reported a significant drop in velocity for the square beanbags fired through the rifled barrels. The cause of inaccuracy and loss of momentum were attributed to the bag flattening out sooner when fired from the rifled barrel, which resulted in an increase of wind resistance and the likeliness to stray from its path. The study involved shooting several pigs with custom loaded 12 gauge drag stabilized beanbags. These rounds pre-loaded for velocities of 400, 350, 300, and 250 feet per second (ft/sec). The pigs were then shot with each round. The rounds traveling 350 and 400 ft/sec penetrated into the pig. The rounds at 250 and 300 ft/sec did not penetrate. The “v50”, a velocity at which 500k of the rounds would either penetrate or not was determined to be 335 ft/sec. A standard drag stabilized round was an average of 292 ft/second, which is well below the penetration velocities. The authors of the research were also familiar with 7 of the 8 deaths that have occurred from less lethal weapons and noted that no deaths had been caused by the drag stabilized beanbag.(Po~ey,2001)

Professor William C. Bailey of Cleveland State University conducted a study on the effect of "less-than-lethal weapons" on police-citizen killing. This study sought to determine if providing officers with less lethal weapons would reduce the number of citizens killed by police officers. The author gathered information on less lethal options within each agency and correlated that with the number of justifiable homicides that had occurred. In his study, he failed to find that providing less lethal weapons had any effect on police-citizen shootings. On the contrary, he found that they did not reduce justifiable homicides in agencies where they were provided. It should be noted that this study involved pepper spray, batons, electrical and restraint devices, but did include extended range less lethal impact weapons. Only 6.6% of the agencies reported the use of "other" types of less lethal, which could have been extended range, and

that category was excluded from analysis. If anything, this study would support that the handheld less lethal options in the 1990 study were ineffective in reducing the number of justifiable homicides (Bailey, 1996).

Each of the studies listed three categories of munitions: the chemical, the impact, and the electrical weapons. Although the types of less lethal weapons have not changed over the past 30 years, there have been significant improvements. The drag stabilized round is an improvement of the square bag for several reasons. First it does not tumble in flight. Second, it is at least twice as accurate, because it is more aerodynamic and it has a reduced loss of velocity. Last studies have shown it to have a lower barrel velocity, reducing penetration fatalities.

Each study on less lethal weapons found that there were several conditions that may require the use of a less lethal weapon, such as a fleeing felon, hostage taker, suicidal person, or civil unrest. Additionally, the studies pointed out that no current weapon was best in all of these incidents and the type of incident dictates the best choice of weapon. The studies also focused on several of the following similar
factors that were critical to the selection of a less lethal weapon.

- Accuracy (The weapon should be highly accurate and able to hit only the intended target) The gauge for accuracy was the dispersion rates at 21 and 75 feet of nine inches or less; based on the standard width of a man being 18 inches. Any variance greater than 9 inches from center of target would be likely to miss.
- Multiple shot capacity (The weapon should be capable of firing more than one shot without reloading.)
- Durability (Be capable of being operated in most environmental conditions without failure.)
- Effectiveness (The weapon should be capable of incapacitating a suspect)
- Range (The weapon should be accurate and effective at distances from 21 to 75 feet)
- Minimal Injury (Although, "less lethal" might indicate, the use of the weapon normally would not cause death, selection should consider potential for injury and death.)
- Filling the gaps (The weapon must supplement rather than replace or add to current levels of force available to the officer.)
- Cost effectiveness (Unfortunately, cost is a factor and will influence the purchasing decision of most agencies. However, the agency should research grants available through the National Institute of Justice for grants that fund less lethal option programs.)

The final consideration is placement of the weapons. In the literature, two methods of providing patrol with less lethal options are found. First equipping all district patrol squads with less-lethal weapons

and authorizing all patrols officer to deploy the weapon. Second, many agencies place the weapon in street supervisor cars and permit deployment by only selected personnel. This is a very important decision, because it affects how many weapons will need to be purchased, as well as the startup cost for ammunition. According to Cole, officers encountering an armed suicidal person need the weapons immediately. Therefore, it is pointless to have less lethal or non-lethal in a sergeant's car or SWAT van when an officer needs them (2001). Morales also wrote that providing patrol with immediate access to less lethal results in less injuries and fatalities, reducing civil suits (Morales et al, 2001).

Methodology

Should police agencies provide extended range, less lethal impact munitions to the patrol division in order to reduce citizen deaths? If so, what should be the basis for selecting that weapon and what is the best choice of weapon to provide to patrol officers?

It is hypothesized that agencies have a moral and legal obligation to provide additional less lethal alternatives to patrol officers and the failing to do so is a poor decision, which could have some serious negative impacts upon a law enforcement agency. It is further hypothesized that the Sage SL6 would meet all the needs of the police agency and therefore be the best choice of weapon to assign patrol personnel.

In order to determine the need for less lethal weapons in the patrol division of the Garland Police Department an analysis was conducted of protective custody arrests classified as suicidal or emotionally disturbed from 1997-2001. The results were studied to determine the frequency that citizens become

suicidal to the point that they require hospitalization. In order to research this issue further, the author conducted surveys (see Appendixes A and B) and interviews of law enforcement supervisors, including a 40-minute recorded interview with an expert consultant on less lethal weapons, Captain Larkin Fourkiller. Surveys were sent to 50 randomly selected agencies, inquiring about the use of less lethal weapons at that agency, the type of weapons used, the number of deployments, and the results of those deployments. This survey sought to determine the number of incidents involving deadly force at their agency one year prior to, and after implementing less lethal weapons. Deadly force included any time that an officer fired at a suspect, regardless of whether the suspect was missed, injured or killed. Information was also solicited about the less lethal options available to the patrol officers, and the use / success ratio for each weapon. The agencies that do not provide less lethal weapons to patrol were excluded from the ratios. Only 30 agencies responded to the surveys. These 30 responses were analyzed to determine if providing patrol officers with extended range less weapons would reduce incidents involving deadly force for that agency. They were also analyzed to determine which weapon is most effective or least effective from the perspective of law enforcement personnel.

An additional survey was conducted of 28 police supervisors who were attending the Law Enforcement Management Institute-Module II. The supervisors varied in rank from Sergeant to Assistant Chief and worked for cities ranging from 2000 to 1.3 million citizens. This survey asked whether they felt that the less lethal weapons should be used by patrol officers or limited to SWAT personnel. They were also asked for a recommendation on the best less lethal weapon to issue patrol officers and all of the data for the original survey was collected from their department. Nineteen of the 28 surveys were returned. These 19 surveys were analyzed to determine whether police supervisors feel there is a need for less lethal weapons at the patrol level and get their opinions regarding the best weapon for the job.

The current case law was reviewed to determine the following. Is an agency legally obligated to provide a less lethal weapon to patrol officers? Is any liability associated with failing to do so? Is a department liable if they have less lethal, but do not use it?

The interview with Captain Larkin Fourkiller focused on the technical aspects of less lethal weapons, the comparison of the various weapon systems, and the best choice to issue to patrol personnel.

Mr. Fourkiller is an instructor in less lethal weapons, serves as a consultant in use of force and weapons training issues, writes articles on cutting edge issues related to less lethal weapons, and speaks at conferences for tactical police associations. This actually consisted of a two-part interview. The first interview consisted of an overview of the various less lethal weapons that were available, the ammunitions and background for each, and general research advice. This interview was conducted prior to any extensive research with the intent of providing the author with enough knowledge of less lethal weapons to conduct a comprehensive study on the subject. The second interview was conducted after completion of all independent research. The intent of this interview was to gain an expert opinion on the best less lethal option for patrol using direct, technical questions. It was further intended to provide Mr. Larkin an opportunity to point out any areas or options that may have been overlooked through the research. Last, Mr. Larkin was solicited for an expert opinion regarding the best choice of less lethal to provide to the patrol division.

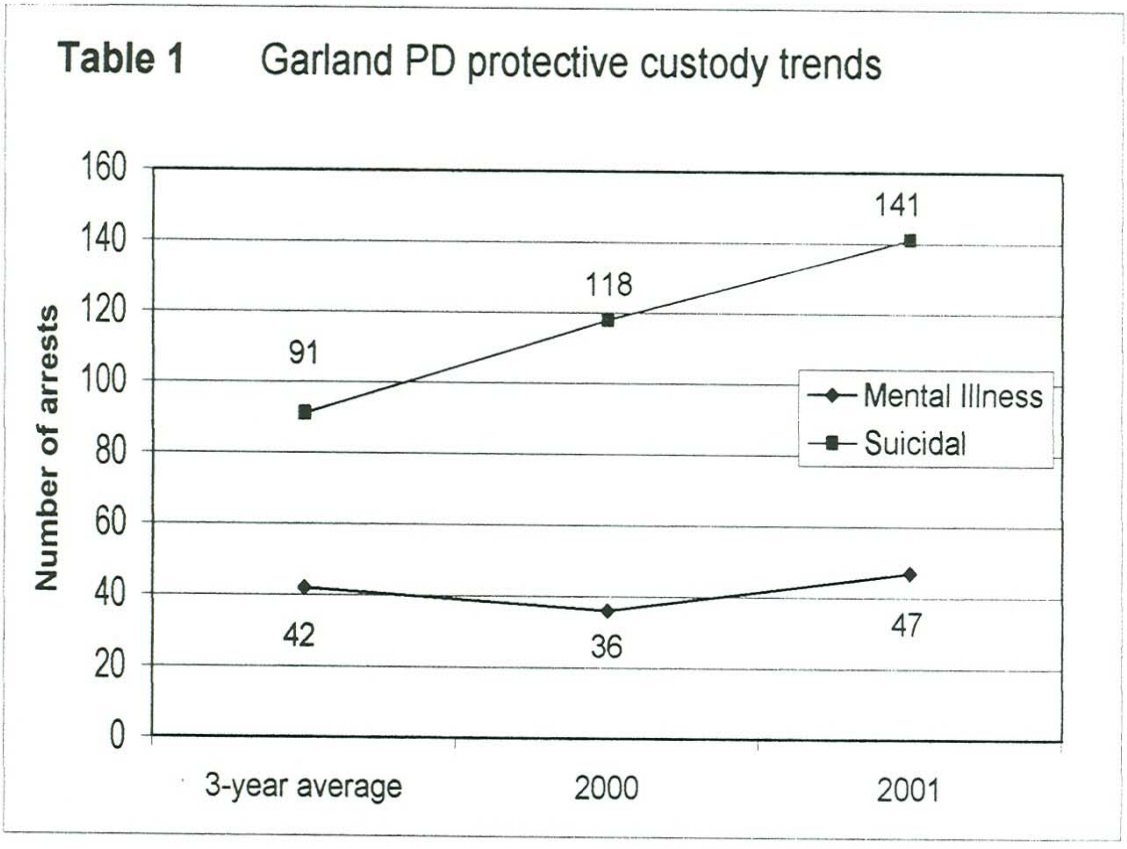
Finally, a costs analysis was done for the weapons that met the accuracy and logistical needs for the patrol division. This included original startup costs and training, maintenance, re-certification, and ammunition replacement Garland Police Department has 120 patrol officers, who staff at least 22 patrol districts throughout four sectors. The method of analyzing ammunitions was based on the expert or manufacturer suggestions for quantities of training and duty ammunition. The quantity and placement of weapons were based upon the need for immediate patrol access to less lethal weapons and based on the following conclusion. In order to meet patrol needs. One weapon should be placed in each district and

supervisor car. Realizing that funds may not permit this allocation of weapons, the costs were figured on placing the weapon in each supervisor car (4), half of the sector cars (11), with 5 extra weapons for training, replacement or SWAT deployment. The total equipment cost was therefore based upon the purchase of 20 weapons, along with ammunition (live and training) and accessories needed for that weapon. The total training costs were figured for training 60 officers, which would permit training all patrol supervisors and Field Training Officers. The data for this was gathered from vendors' quotes, catalogs and prices on the Internet

Findings

Garland Police Department records reveal 754 protective custody arrests from 1997 to 2001. The arrests were categorized as protective custody - suicidal (PCS) and protective custody - mental (PCM). Seventy-two percent (N=544) of the protective custody arrests were for suicidal subjects and 28% (N=210) were mentally disturbed. From 1997-1999, Garland Officers took an annual average of 91 suicidal subjects and 42 mentally disturbed subjects into custody for mental evaluation. In the year 2000, the mentally disturbed subjects decreased 14% below the 3-year average (42). However, in 2001 the mentally disturbed subjects increased 12% above the 3-year average. Furthermore, the number of suicidal subjects was above the 3-year average by 300k in 2000 and 55% in 2001 (see Table 1).

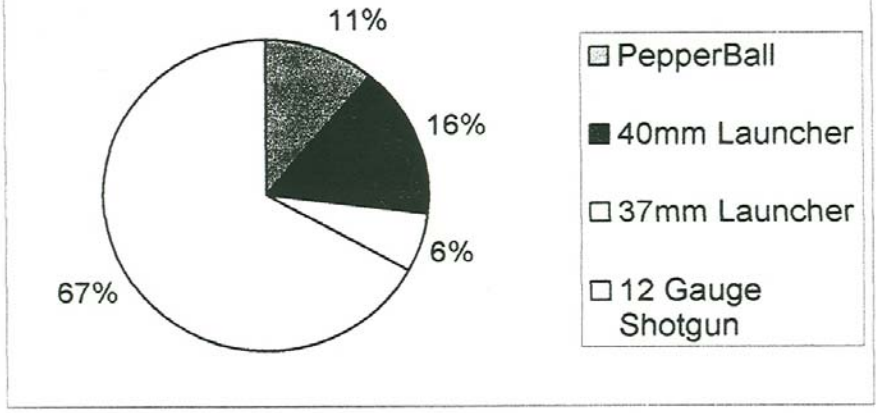
Table 1 Garland PD protective custody trends



Even more eye opening was the number of subjects handled more than once. For example, in 2000 the number of "repeat customers" increased 51 % over the 3-year average and in 2001 they increased 126% over the 3-year average (as reported by Debbie Bettes, Crime Analyst for the Garland Police Department).

The survey results revealed that 56% of responding agencies provide less lethal weapons to their patrol officers. Shotgun beanbags were provided by 71 % of the agencies, while other weapons were retained for SWAT team deployment In fact, only 17% of the agencies used the 40mm, 12% used PepperBall, and 6% used the 37mm launcher (see Table 2).

Table 2 Weapons provided to patrol by responding agencies



Two or more of these were provided by 30% of responding agencies. A significant number of agencies were considering purchasing the PepperBall Tactical System.

There were 225 reported less lethal deployments, with 95% of those labeled "successful." Out of the "successful" deployments, 84% were deployed during 2001 Austin and Cincinnati riots. The shotgun beanbag made up 6?Ok of the .successful" deployments. Six deadly force incidents occurred prior to implementation of the less lethal impact weapons, one resulting in death. However, only one incident of deadly force was reported after adding less lethal weapons to patrol. The exception was in Cincinnati, Ohio, which reported one lethal deadly force incident during a time that the Tasers were being used by their agency. According to the representative from Cincinnati, the Taser was not used because 23 prior deployments resulted in only "limited success." Incidentally, shotgun beanbags were added in 1997 because of this shooting and no further deadly force incidents have occurred (personal communication with Doug Ventre, 2/22/2002).

Only 52% of surveyed supervisors had an opinion of the best less lethal weapon for patrol officers. 75% of those felt that the shotgun beanbag was the best choice, while the remaining 25% was divided equally between the Sage 37mm and the Taser. 95% of these supervisors that patrol officers should be

given less lethal devices, but 5% felt that only SWAT team members should use the weapon.

Tennessee v. Gamer and *Graham v. Conner* have laid the legal foundation for use of force. *Tennessee v. Gamer* limits officers from using deadly force to stop a fleeing felon (1985). *Graham v. Conner* sets the "reasonableness standard" to determine whether force was excessive. Nearly every subsequent case involving unlawful seizure or excessive force will cite one or both of these cases, which is why they both have indirectly molded the direction of case law regarding less lethal force. For example, in 1994, police shot Michael G. Roy after he lunged toward the officers with two knives. During appeal, the plaintiff argued that the officers were inadequately trained in "non-lethal alternatives for subduing dangerous but intoxicated persons"(Roy *v. City* of *Lewiston [a]).* The court rejected this argument in and supported the lower court ruling that it was "not in the business of dictating what equipment must be made available to the police officers or requiring them to be up to date on the newest developments in controlling unruly individuals" *Roy v. Inhabitants* of *the City* of *Lewiston [b]* (1994). Another case that has been cited in several publications promoting less lethal weapons is *O'Neal v DeKalb County, Georgia* (1988). These articles refer to a dissenting criticism by Circuit Judge Clark for not providing less lethal alternatives, yet they fail to discuss the fact that the majority decision was made in favor of DeKalb County. Actually, the majority opinion was that the officers were not liable or guilty of violating the suspect's rights after he stabbed six people and charged officers with a knife, causing the officer to shoot him. In the district trial of O'Neal v. DeKalb, the plaintiff's argued that the officers should have used alternative force. But the court disagreed, stating that the Constitution does not require officers to use a minimum amount to force to prevent a deadly force assault *(O'Neal v. DeKalb,* 1987). In a similar case, *Plakas v. Drinski* (1994) the court ruled, "officers have no duty to use alternate force levels when deadly force is justified.'

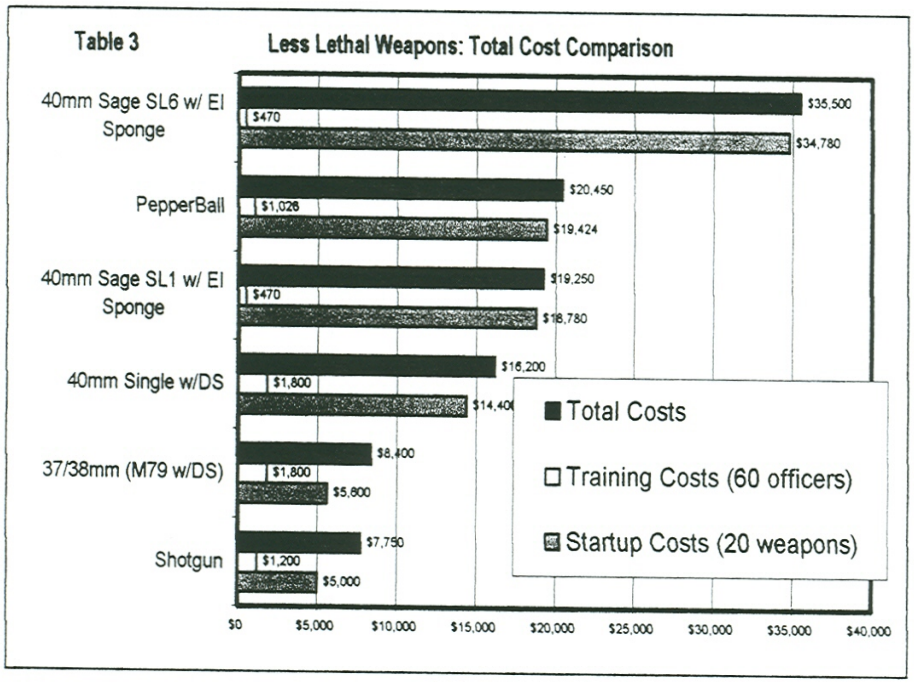
In *Canton vs. Harris* (1989) the court ruled that an agency is liable for failure to train, only when that failure amounts to a "deliberate indifference" to the rights of the citizen (as cited by Ross and Jones, 1996). Ross and Jones concluded that the need to train officers in the constitutional use of less-than-Iethal force is so 'obvious,' that the failure to train properly could properly be characterized as 'deliberate indifference' to the constitutional rights of the citizen" (Ross and Jones, 1996, 252).

The final area of this research sought to determine the best extended-range less lethal weapon for patrol officers. In reviewing the criteria, it became obvious that there were two additional categories of less lethal weapons available. The injury potential for each dictates placement at different levels on Garland's escalating force continuum. This continuum places use of force on an increasing scale that is based upon the risk of injury or death to the suspect. The proper level of force is chosen based upon the actions or resistance of the suspect

The first new category identified (Soft Extended Range Weapons) is a level between pepper spray and the baton. PepperBall and the Taser were placed in this category because they have minimal risk of injury and virtually no risk of death when used properly. The desired affect at this level is consistent with the Pressure Point and Control Tactics (PPCT) term, "pain compliance". However, the Taser was not selected due to poor accuracy and range. The second category (Intermediate Extended Range Impact Weapons) is placed between the baton and firearm because there is a greater risk of injury when using this weapon. There is a minimal risk of death when the weapon is used appropriately, but people have died from less lethal impact rounds. The critical issue with this weapon is the proper selection of ammunition (the drag-stabilized beanbag). The desired affect of this weapon is incapacitation by creating a disabling effect similar to the PPCT term, ""motor dysfunction."

The PepperBall was selected for the soft extended range weapon for the following reasons. The PepperBall (with optional laser sites) is accurate up to 30 feet, which is well past the 21 feet edged-weapon reaction range. It is also effective up to 100 feet for the purpose of crowd control through saturation. Further, there are two aspects related to the effectiveness of the PepperBall: Kinetic Impact and Powdered OC pepper. The 8-10 ft/lbs. of kinetic impact and 5% pepper are further enhanced by the 180 round capacity of the weapon. The projectiles are .68 caliber round balls, similar to paintballs. The OC pepper within the 2-gram capsules is supplied by Armor Holdings. This PepperBall was tested by San Diego Police Department and found to shoot a 7 -inch group at 21 feet (Kenny et AI, 2001). This weapon has minimal potential for injury or death, even when fired at point-blank, and has been referred to as "nonlethal" by the manufacturer, Jaycor Tactical Systems. The initial equipment and training cost for this system is approximately $20,000, but annual re certifications will cost around $1026 annually (see Table 3).

Table 3 Less Lethal Weapons: Total Cost Comparison



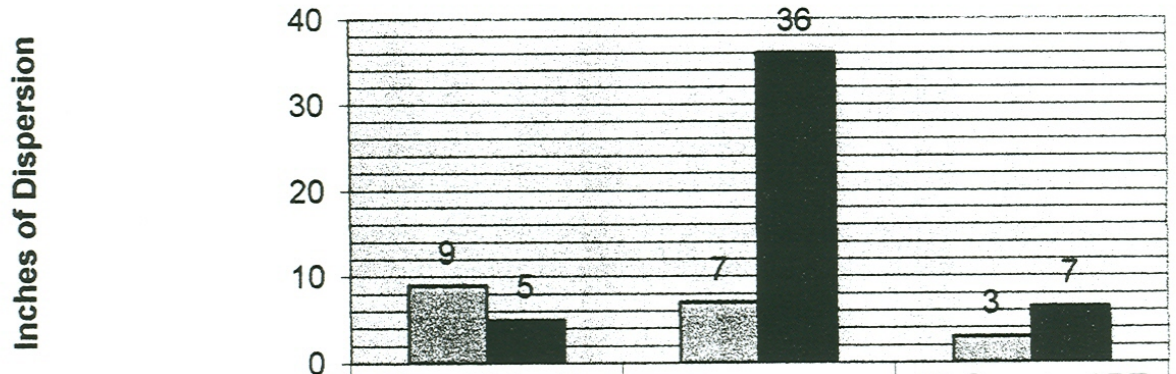
The 12-gauge shotgun beanbag was the second weapon found to meet the requirements of "filling the gap" with less lethal weapons. The beanbag round recommended is the Defense Technology 23DS, drag stabilized round. This round was more accurate at 75 feet than its competitors of similar design. Although the CTS Supersock was featured as the "most accurate less lethal round ever tested by the NTOA" in a Tactical Edge article written by Steve Ijames (1999, 60), the Defense Technology 23DS showed to be more accurate at 75 ft. Both of the rounds held 3 inch dispersions at 21 feet however, the dispersion of the CTS round was 11.5 inches verses the Defense Technology round's 6.5 inch dispersion (Kenny et Al, 2001). Although this 39-gram bag has a kinetic energy of around 120 foot pounds, the risk of injuries or death is decreased by reduced velocity and greater accuracy than the outdated square beanbags. At the time of this study, there have been 10 deaths associated with less lethal munitions. However, further investigation reveals that 2 of those deaths were attributed to misloaded rounds, 5 were caused by 37mm weapons (primarily the K01 and K01 LE rounds), and 3 were shot with the square shotgun beanbag round. Finally, 2 of the 3 shotgun rounds were the result of striking inappropriate targets (the chest), but the cause of the third was still being investigated (Hubbs et Al, 1998). In conclusion, it is found that the shotgun round has potential to kill if used inappropriately, but correct training and new technology will make large strides in preventing those deaths.

It is understood that the Garland Police Department may not be able to implement both of the weapons that meet the requirements for patrol. Therefore, given all of the variables involved, the second less lethal weapon was found the best option for patrol. The basis for this finding was the applications in which patrol would use either of the weapons. From reports by other agencies, there are two basic applications for patrol to apply the less lethal weapon. The first was in suicide by cop incidents and the second was in civil unrest or riots.

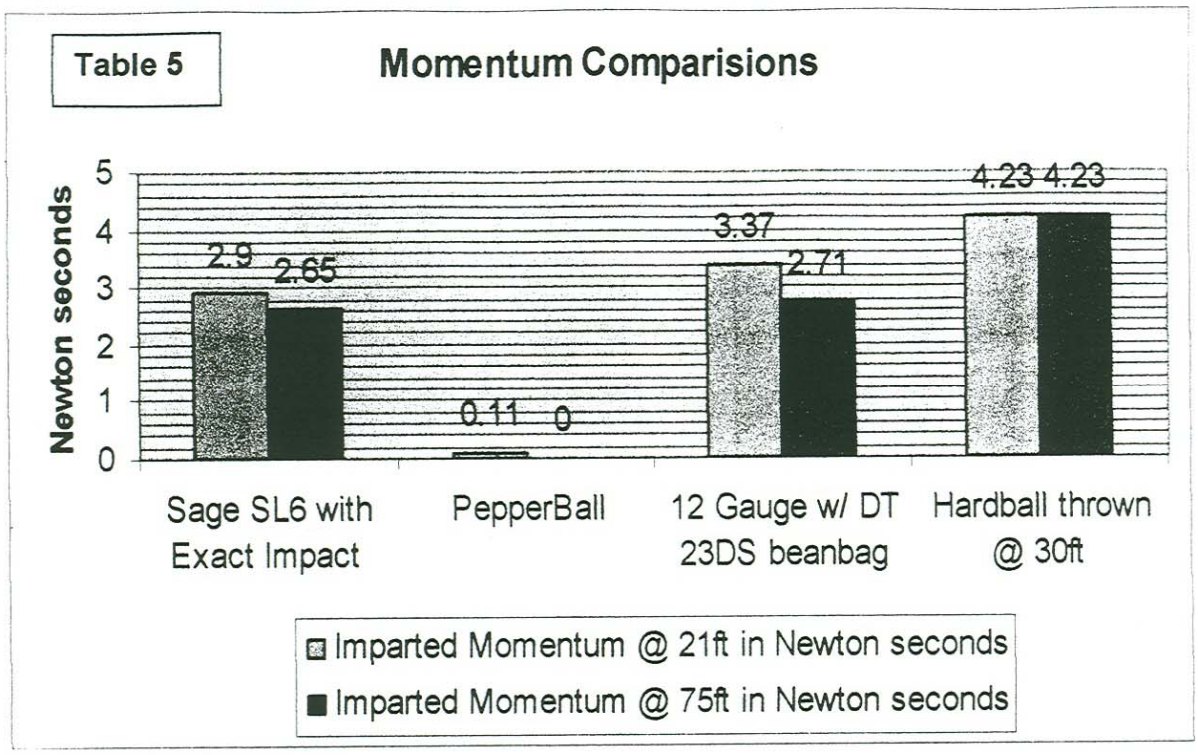
The Garland Police Department has shown to have an increase in dealings with suicidal or emotionally disturbed persons over the past five years. There have also been small-scale incidents of civil disorder, which usually involved a citywide call for assistance from all on-duty police officers. Each of these has a great potential for injury or death to citizens or officers. When considering the application of weapons to armed suicidal persons, the shotgun beanbag is clearly the better choice. The beanbag has a greater accuracy range, which allows for proper distancing. It has a greater kinetic impact, resulting in an increased likeliness that the suspect will be immediately incapacitated and unable to continue his threats. Less lethal expert, Larkin Fourkiller, equated the difference in kinetic impacts of the PepperBall verses the beanbag to the difference of "being punched by a ten-year old girl or a professional boxer". He also indicated that he felt the shotgun to be the best selection for patrol, when considering all of the factors involved. (Personal

communication, February 2nd 2002). The PepperBall has great potential for ending confrontations, but if given a choice between the two systems, the shotgun is found to be more effective. Although the PepperBall also relies on OC pepper to disable a suspect, OC is found less effective on impaired or emotionally disturbed persons, which consists of nearly 74% of suicidal subjects. For example, the Carrollton Police Department recently shot a suicidal person 12 times with the PepperBall, while he plunged a knife into his own chest. The beanbag has saved countless lives and has a long track record of successful deployments, while the PepperBall is new territory and should be approached cautiously with failsafe measures to back it up. Finally, all officers are familiar with the shotgun, so it will require less training and familiarization than a new weapon. Regarding riots, Cincinnati Police reported the shotgun to be effective in the 2001 riot where they fired 140 rounds with no injuries. These facts support the finding that the beanbag is the most effective tool for both patrol applications, particularly with the "Suicide by Cop" incidents. As a safety precaution, the shotguns should be clearly marked dedicated weapons that are never used for lethal ammunition. Florescent stocks and fore-grips should be added to clearly identify the shotgun as a less than lethal weapon. The initial equipment cost for this weapon will be approximately $5000 and training will cost $1200 (see Table 3). This includes replacing the stock and handgrip on existing shotguns with florescent orange equipment In summary, the 12-gauge, cylinder bore shotgun with Defense Technology's 23DS drag-stabilized round is more accurate, carries more momentum, and is more cost-effective less lethal weapon system (see Tables 4 and 5 for accuracy and momentum comparisons).

Table 4 **Weapon Accuracy Comparison**



	Sage SL6 with Exact Impact	PepperBall	12 Gauge w/ DT 23DS beanbag
Accuracy @ 21ft	9	7	3
Accuracy @75ft	5	36	7



Conclusion

The purpose of this study was to determine the need for additional less lethal weapons in the patrol division of the Garland Police Department. The research further sought to explore the question of legal and moral obligation to use alternative levels of force on suicidal subjects. If an obligation was established, then it sought to explore the options and determine the best choice of weapon to provide for patrol application.

It was hypothesized that the Garland Police Department has a legal and moral obligation to provide patrol officers with additional less lethal alternatives and failure to do so would result in civil liability. However, the research only partially supports this hypothesis. The majority of support comes from the statistics of the Garland Police Department regarding suicidal subjects. This and other increases in suicidal subjects and civil unrest confronting patrol officers have intensified a 3O-year search for less lethal weapons in law enforcement. In the infant stages, less lethal research focused on military needs and replacement of the firearm. Very early on, participants abandoned the non-lethal search and settled for options that were less than lethal. This term finally changed to less lethal because of the realization that any of the current tools could be lethal if used incorrectly, but that many of them had less potential to kill than a firearm. After years of research, there is still no single less lethal weapon that can be used for every

scenario or hope to replace deadly force. The needs and focus on law enforcement applications have not reduced; in fact the opposite is true. Incidents of suicide by cop have been identified in 10-15% of most police shootings and up to 50% in certain municipal police shootings.

The Garland Police Department has seen an increase in suicidal subjects, arresting over 750 subjects in a 5-year period who were suicidal or mentally ill. The number over suicidal subjects alone has increased by 30% and 55% for 2000 and 2001. Incidents have occurred that met the characteristics of suicide by cop and the officer correctly used deadly force. In addition, studies on less lethal weapons have shown them to have less potential for killing than the firearm, hence the term "less lethal.» The firearm kills approximately half of the time, yet it takes up to 400 lives per year at the hands of law enforcement Granted, many of those involved immediate danger to the officer and common sense would dictate that lethal force it the only option. At least 10%, however, were cases where the subject wanted to die and got the police to do the job for them. Since 96% of the shootings occurred with only two or fewer officers on scene and SWAT did not have time to respond, the officers were left to handle the incident with the only sensible force available -lethal force. This has drawn much public attention and criticism, leading agencies to search for less lethal alternative to these difficult calls. Therefore, the findings do support the hypothesis that the agency has a moral obligation to provide additional less lethal weapons to the patrol officers and train the officers to deal with suicidal persons.

However, the findings do not support any legal obligation for agencies to provide additional less lethal weapons to patrol officers. In fact the cases reviewed rejected claims that agencies were liable for failure to provide less lethal weapons and training. One court ruled that a failure to train must amount to a deliberate indifference to the rights of the citizen. Some of the literature that was reviewed stated a case in support of less lethal weapons, but the review of the case revealed that opinion to be from a dissenting judge, rather than the majority ruling. Finally, the court cases ruled an agency that has less lethal options available would not be liable for failure to use it when deadly force was justified.

In review of the weapons systems and munitions available and the research on less lethal, a criteria was established for selecting the best less lethal weapon for patrol. It was hypothesized that the best plan would be to place the Sage 37mm SL6 in the patrol supervisor cars. This hypothesis was not supported by the findings of this study. The Sage SL6 (drag stabilized) was less accurate than several others were, including the drag stabilized shotgun beanbag, and exact impact 40mm. The K01 rounds were the cause of five impact weapon deaths. The cost to purchase 20 weapons and train 60 officers with the Sage SL6 and Exact Impact rounds would cost about $43,945.

Two options did meet the criteria for the less lethal weapon needs of patrol. They were the PepperBall and the drag stabilized, 12-gauge beanbag. The PepperBall was accurate up to 30 feet and has the combination or kinetic impact and OC pepper. This weapon has the capacity to fire up to 180 rounds at the rate of six rounds per second, which makes it an excellent option for crowd control. The .68 caliber pepper-filled capsules travel up to 350 feet per second and can affect subjects up to 100 feet away through area saturation. This weapon should be classified as Soft Extended Range Weapons and placed in 11 district cars.

The 12-gauge drag stabilized beanbag was the most accurate weapon and ammunition combination out of 80 rounds tested by the Los Angeles Sheriff's Office. Surveys revealed that 71 % of agencies that have less lethal in patrol chose the shotgun beanbag as one of the less lethal alternatives. Those same agencies reported a 100% reduction in use of deadly force after adding the shotgun beanbag to the patrol division. Additionally studies reveal that extended range impact weapons have caused 10 known deaths across the United States and in Canada. However, the use of the beanbag alone was only attributed to three of the deaths, which was less than 1 % of the reported shootings. Further, none of these deaths were caused by the drag-stabilized beanbag.

One focus of this study was to identify which weapon is most applicable to patrol. The process of comparing some of these weapons was like comparing oranges and apples; each is a less lethal weapon, but they operate under completely different tactics. The two in question (PepperBall and Shotgun beanbag) should realistically fall into different categories on the force continuum and both be added to patrol. However, in order to determine which of the two were most useful to patrol, they were measured against two common patrol applications - "suicide by cop" incidents and civil unrest.

In conclusion, the beanbag shotgun combined with the drag-stabilized round was found to be the most effective weapon for incapacitating a suicidal subject This was based upon a kinetic impact that was 10 times greater that the PepperBall. Although the PepperBall also contains OC pepper, its intended effect is pain compliance rather than immediate incapacitation. This could yield the subject an opportunity to "finish the job", or escalate the officer's force by threatening the police or another. In addition, studies have shown that the goal-directed, drug -impaired person, and emotionally disturbed individuals have higher pain thresholds and are often unaffected by OC pepper. Also, studies have shown that as many as 68% of the subjects involved in past beanbag shootings were so mentally impaired that they would have been unable to comply with the officer's commands. That particular subject is not going to be persuaded through pain compliance. He must be incapacitated immediately and taken into custody before he can escalate the

levels of force. Hence, the need exists for effective less-lethal impact munitions that are immediately available to the patrol officer.

The difficulty presented to this study was the fact that few agencies maintain good records on deadly force encounters. When asked how many times an officer fired a weapons at a suspect, regardless of the outcome, many city officials do not know the answer. In order to show the effect of providing less lethal weapons to patrol officers, we must measure the deadly force encounters prior to and after the implementation of a less lethal program. Again, many agencies could neither produce records on the less lethal deployments, nor determine whether any changes to deadly force encounters had occurred after they began to use the weapons. Other agencies did document the use of less lethal, but failed to separate it from deadly force, which made data retrieval cumbersome and impractical. For example, Houston PO uses the shotgun beanbag in the patrol division and does document uses. However, they categorize the use of the weapon as deadly force, so they were not able to provide information on the number of less lethal or lethal force incidents or provide insight into the effectiveness of the less lethal weapon at saving lives. Future researchers are encouraged to expand their surveys to a five-year period prior to and after implementation of less lethal weapons.

The results of this study are indeed crucial to law enforcement. Many decision-makers are misinformed about the legal requirements for less lethal weapons. Whether or not less lethal weapons save lives is the pivot point on which the issue of moral obligation for implementation hinges. At this time, there is insufficient data to make an informed opinion. Although case law does not currency mandate such programs, concern for the citizens and officers should motivate agencies to take the initiative before it is required. Certainly, the data on less lethal weapons is growing with the new technology, and should be explored by agencies who desire to make every effort to protect the lives of their citizens, even if it means protecting them from themselves. This study has revealed that many proactive Police agencies are tackling this task before society mandates it.

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Appendix A Agency Survey by Phone

Agency _____ Contact Person_____

Number of Officers_____ Contact Number_____

Do you have less lethal available to patrol officers Y/N

If no, then discontinue survey.

What type of less lethal weapons does patrol use? (Circle all that apply) 1 year implemented

- Taser
- 37/38mm
- 40mm
- Shotgun bean bag rounds
- PepperBall
- Other_____

How many times have you used each weapon? How many times was it successful?

- Taser_____/_____
- 37/38_____/_____
- 48mm_____/_____
- Shotgun bean bag rounds_____/_____
- PepperBall_____/_____
- Other_____/_____

How many incidents escalated prior to implementing the Less Lethal where deadly force (firearm) had to be used by the patrol officer? (1 year prior to implementation)

What were the number of suspects killed by officers in those incidents?

How many incidents escalated after implementing the Less Lethal where deadly force (firearm) had to be used by the officer? (1 year following *I* annual average to date)

What was the number of suspects killed by officers in those incidents?
(1 year after/annual average to date)

Appendix B

Agency Survey on Less Lethal Weapons

Agency_____ Contact Person_____

Number of Officers_____ Contact Number_____

Do you have less lethal available to patrol officers Y/N

If no, then discontinue survey.

What type of less lethal weapons does patrol use? (Circle all that apply)
Please list year implemented

- Taser
- 37/38mm
- 40mm
- Shotgun bean bag rounds
- PepperBall
- Other_____

How many times have you used each weapon? / How many times was it successful?

- Taser_____/_____
- 37/38_____/_____
- 48mm_____/_____
- Shotgun bean bag rounds_____/_____
- PepperBall_____/_____
- Other_____/_____

How many incidents escalated prior to implementing the Less Lethal where deadly force (firearm) had to be used by the patrol officer? (1 year prior to implementation)

What were the number of suspects killed by officers in those incidents?

How many incidents escalated after implementing the Less Lethal where deadly force (firearm) had to be used by the officer? (1 year following / annual average to date)

What was the number of suspects killed by officers in those incidents?
(1 year after / annual average to date)